National Institute of Environmental Health Sciences

New Zealand risk management approach for toxic cyanobacteria in drinking water

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Abstract:

Cyanobacterial blooms are common seasonal phenomena occurring worldwide in fresh, estuarine and coastal waters, including those used for drinking-water supplies, recreation and stock watering. In New Zealand, the frequency of blooms and their geographic spread is likely to grow with increasing eutrophication and global climate change. The New Zealand Ministry of Health has recently developed national criteria for assessing and managing the risk of toxic cyanobacteria in drinking-water supplies. This paper investigates a cyanobacterial bloom incident in the summer 2002/03 in the Waikato River and hydro lakes, which are a major drinking-water supply for Hamilton City and many other smaller towns along the river. The procedures invoked by the Hamilton City Council and other authorities to deal with this bloom event are considered in terms of the best practice of the day and compared with the Drinking-Water Standards for New Zealand 2005. The presence of cyanobacteria has significant economic effects because of increases in water supply treatment costs or the need to use an alternative source, and there are also social effects from the disruption of recreational use of water bodies and loss of confidence in the quality of reticulated, treated water supplies. Notional evaluation of economic cost of monitoring regimes and control, based on the Waikato River cyanobacterial bloom incident, is also given. The multi-barrier and process-control risk management approach, reliant on good vertical communication systems between central and local government, is an advanced approach useful for any country that regularly experiences cyanobacterial problems. © 2007 The Authors. Journal Compilation © 2007 Public Health Association of Australia.

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Resource Description

Early Warning System: ☒

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☒

weather or climate related pathway by which climate change affects health

Food/Water Quality, Food/Water Security, Precipitation

Food/Water Quality: Biotoxin/Algal Bloom, Other Water Quality Issue

Water Quality (other): Eutrophication; Cyanobacteria

Geographic Feature: ☑

resource focuses on specific type of geography

Freshwater, Ocean/Coastal

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

General Health Impact

Resource Type: ☑

format or standard characteristic of resource

Policy/Opinion, Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content